

WHAT IS CLAIMED IS:

1. A flap valve for controlling the air pressure within a protected space defined by walls, said flap valve comprising:

a valve flap, articulated at least indirectly to the surface of one of said walls and being subjectable to both a sealing force which forces said valve flap against a valve seat surrounding an opening in said wall surface and to an opening force which lifts the flap off said valve seat;

said flap valve having a first position in which said protected space is sealed off from a contaminated environment, and a second position in which air from said protected space is allowed to escape into said environment via said opening;

wherein said sealing force is a magnetic attraction between a portion of the surface of said valve flap and said valve seat.

2. The flap valve as claimed in claim 1, wherein said opening force is a predetermined overpressure prevailing within said protected space and acting upon said valve flap through said opening.

3. The flap valve as claimed in claim 1, wherein said opening force is a manual force applied to said flap by a user of said protected space.

4. The flap valve as claimed in claim 1, wherein said magnetic attraction is provided by magnetic means located in at least one portion of said valve flap interacting with similar magnetic means located in said valve seat.

5. The flap valve as claimed in claim 4, wherein said magnetic means comprise strips made of a mixture of plastic and steel powder, said strips, after being magnetized, constituting permanent magnets.

6. The flap valve as claimed in claim 4, wherein said magnetic means comprise strips made of a mixture of plastic and steel powder, said strips, after being magnetized, constituting permanent magnets.

7. The flap valve as claimed in claim 5, further comprising:

two trough-like frames adapted to accommodate said magnetized strips, one of said frames being attached to said one of said wall surfaces around said opening and the other of said frames being attached to said valve flap;

the strips within said two frames exerting a force of attraction on one another when said valve flap is in said first terminal position.

8. The flap valve as claimed in claim 6, wherein the magnetic strips in one of said frames are replaceable by strips made of a ferromagnetic material.

9. The flap valve as claimed in claim 6, wherein said trough-like frames accommodate, in addition to said magnetized strips, at least one strip of non-ferromagnetic foil for adjusting the magnetic attraction between said two frames when said valve flap is in said first terminal position.

10. The flap valve as claimed in claim 1, wherein said valve flap is an integral part of a base sheet attachable, over some of its length, to the surface of said wall.

11. The flap valve as claimed in claim 9, wherein said valve flap is adapted to swivel about a line defining a hinge constituted by the borderline between the attached and unattached portions of said base sheet.

12. The flap valve as claimed in claim 1, wherein the walls of said protected space are rigid, semi-rigid, flexible or a combination thereof.

13. The flap valve as claimed in claim 11, wherein at least some of said walls are lightweight, flat, foldable, flexible walls.

14. A flap valve for controlling the air pressure within a protected space defined by walls, said flap valve comprising:

a valve membrane having a plurality of tongue-like valve flaps integral therewith;

an outer clamping frame having a plurality of windows of a number equal to the number of said flaps, of a size larger than the size of said flaps, and of a spacing equal to the spacing of said flaps;

an inner clamping frame having a plurality of windows of a number equal to the number of said flaps, of a size smaller than the size of said flaps, and of a spacing equal to the spacing of said flaps;

said membrane and the surface of one of said walls being clamped together between said outer and inner clamping frames around a window cut in said wall.

15. The flap valve as claimed in claim 14, wherein the edge regions of said outer and inner clamping frames are provided with a V-shaped profile, so as to enhance the clamping effect.

16. The flap valve as claimed in claim 14, wherein the thickness of said membrane is between 0.4 and 0.7 mm.

17. The flap valve as claimed in claim 14, wherein said membrane is made of a material selected from the group comprising Teflon® and Mylar®.

18. The flap valve as claimed in claim 14, wherein the walls of said protected space are rigid, semi-rigid, flexible or a combination thereof.

19. The flap valve as claimed in claim 14, wherein at least some of said walls are lightweight, flat, foldable, flexible walls.

20. A method for controlling the air pressure within a protected space defined by walls and having at least one window-like opening, said method comprising the steps of:

providing a flap valve as claimed in claim 1;

providing two trough-like frames;

filling said frames with magnetic strips;

attaching one of said frames to the surface of one of said walls, around said window-like opening;

attaching the other one of said frames to the flap of said valve, and

hingedly attaching said flap to said wall surface at one of its edges, at such a distance from said window-like opening that, when said flap is closed by swiveling it about its hinged edge, the frame attached to said wall surface and the frame attached to said flap will at least approximately register.

21. A method for controlling the air pressure within a protected space defined by walls and having at least one window-like opening, said method comprising the steps of:

- providing a flap valve as claimed in claim 14;
- providing a plurality of sets of screws, washers and nuts, and
- using said sets of screws, washers and nuts to assemble said flap valve around said window-like opening in the following order: outer clamping frame, wall surface, membrane and inner clamping frame.